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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/808,447

03/25/2004

Takeshi Kijima

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OLIFF & BERRIDGE, PLC  
P.O. BOX 320850  
ALEXANDRIA, VA 22320-4850

EXAMINER

JOLLEY, KIRSTEN

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

09/19/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/808,447	<b>Applicant(s)</b> KIJIMA ET AL.	
	<b>Examiner</b> Kirsten C. Jolley	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 7-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 11-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. This application contains claims 7-10 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 is vague and indefinite because it is directed to a method claim, whereas claim 8 from which it depends is a product claim (that has been withdrawn from consideration).

### ***Response to Amendments/Arguments***

4. The objections to the specification and claim 5 have been withdrawn in response to Applicant's amendments. Additionally, the 102(b) and 103(a) rejections over Sanada et al. have been withdrawn in response to Applicant's amendment to claim 1 requiring that the ceramic film includes a perovskite structure.

5. With respect to the 35 USC 103(a) rejections over Miller et al. in view of Sanada et al., Applicant's arguments filed May 21, 2008 have been fully considered but they are not

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persuasive. Applicant states that Miller does not disclose or establish any reason to provide at least the method for manufacturing a ceramic film that includes forming a ceramic film including a perovskite structure by a heat treatment, as recited in claim 1. The Examiner disagrees. Miller et al. discloses that a PLZT perovskite ceramic film is formed upon heat treatment, see col. 3, lines 7-17 and col. 12, lines 36-39, which specifically state that the ceramic film produced is a perovskite structure.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 5-6, and 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. (US 5,116,643) in view of Sanada et al. (US 5,989,632).

Miller et al. is directed to a method of preparing a sol-gel and application of the sol-gel by spin coating to form a PLZT perovskite complex oxide ceramic film. Miller et al. also discloses that the substrate may have a platinum electrode thereon (col. 11, lines 50-54). Miller et al. generally discloses use of spin techniques to apply the film. Sanada et al. discloses an improved method of applying coatings to semiconductor substrates, including ceramic silica coatings, having high efficiency/low consumption of coating solution since the occurrence of fingers is minimized. Sanada et al.'s method includes use of a second low speed rotation step to accomplish this. It would have been obvious to one having ordinary skill in the art to have used

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the specific spin coating method of Sanada et al., including a second low speed rotation step, in the sol-gel ceramic complex oxide application method of Miller et al. in order to reduce consumption of the ceramic coating solution with the expectation of successful results since Sanada et al. is not limited as to the types of coating materials which may be used and specifically teaches use of another ceramic coating material.

As to claim 3, Sanada et al. is silent with respect to a step of drying the coating film after application by spin coating. The last rotational step of Sanada et al.'s method completes spreading of the coating material over the entire surface of the substrate. It is well known in the spin coating art, particularly the art of applying SOG coatings, to dry the applied coating film after application to evaporate the solvents/liquids therein. It would have been obvious to have included a step of drying the coating film after application in the method of Sanada et al. with the expectation of successful results since dry coated films are the end product.

As to new claim 11, Figure 17 of Sanada et al. illustrates that the first time is shorter than the third time.

As to new claims 12-18, the ceramic material of Miller et al. includes Ti, Zr, La, and Pb, and includes a PZT, the substrate is made of silicon, and is directed to manufacturing a ferroelectric memory on semiconductor wafers (col. 1 and col. 11, lines 50-54).

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. in view of Sanada et al. as applied to claim 3 above, and further in view of Nakagawa (US 6,777,350).

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Miller et al. in view of Sanada et al. lacks a teaching of drying the coating film by blowing gas onto the coating film. Nakagawa is directed to a process of applying a coating film by spin coating, similar to Sanada et al. Nakagawa teaches that if air or nitrogen gas is blown on the wafer while rotating, the drying time is 2-3 times faster than for the conventional spin-drying technique. It would have been obvious, upon seeing Nakagawa, to have incorporated a step of blowing air or nitrogen gas on the coating film in the process of Miller et al. in view of Sanada et al. in order to significantly speed up drying of its coating film by 2-3 times.

9. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. in view of Sanada et al. as applied to claim 1 above, and further in view of WO 03/023858.

Natori et al. (US 2003/0227803) is cited as an English translation of WO 03/023858.

Miller et al. lacks a teaching of the coating material comprising Si or Ge. WO '858 is cited for its teaching of including Si or Ge paraelectric phase in a PLZT thin films (paragraphs [0035]-[0040]). It would have been obvious, upon seeing the prior art of Miller et al. and Sanada et al. in combination with WO '858 to have added a paraelectric phase including Si or Ge in the ferroelectric PLZT thin film of Miller et al. in view of Sanada et al. with the expectation of preventing the occurrence of 90° domains and obtaining hysteresis having good squareness.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Tuesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Kirsten C Jolley/

Primary Examiner, Art Unit 1792

kcj